

NOVELTIES IN PANICUM (GRAMINEAE) FROM KAHOO LAWE

HAWAIIAN PLANT STUDIES 102

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The small arid island Kahoolawe was in the 19th Century exploited for grazing land. It was overgrazed by cattle, sheep, and particularly by goats. The forest and the plant cover was destroyed, and subsequent erosion removed much of the soil. This happened before there was an adequate study of the flora. Only a few endemic plants are known from there. Recently several explorations have been made of the island, and the ones subsequent to rainy spells have discovered a number of novelties.

Previous publications have made known the following species as endemic to Kahoolawe: Neraudia kahoolawensis Hbd., Gouania cucullata St. John, G. Remyi St. John, Lipochaeta bryanii Sherff, and L. kahoolawensis Sherff. The present note adds to this list one new species and one variety of Panicum.

An additional indigenous grass for the island is Panicum ramosius Hitchc., Waikahalulu Bay, 500 ft elev., XI/25/'78, W. Char & L. Yoshida 78.067; and Smuggler's Cove, XI/26/'78, Char & Yoshida 78.078.

Panicum Cornae sp. nov. (sect. Trichoides). Fig. 1.

Diagnosis Holotypi: Planta 23 cm alta annua caespitosa erecta est, radicibus fibrosis, ramis basalibus pluribus, culmis ex nodis inferis 1-4-ramosis, internodiis 1-4 cm longis 0.4-0.5 mm diametro adscendente albe minute puberulis, nodis albe pilosis, vaginis 2-2.5 cm longis nervis parallelis multis prominentibus glabris sed intervallis divergente albe pilosis, ligulis circulis pilosis pilis 0.8-1 mm longis, laminis basalibus 2-2.5 cm longis 1.5 mm latis, laminis caulinarum 5-13 cm longis 2 mm latis acutis mox involutis in basi pilosis infra nervis prominentibus et glabris sed intervallis adscendente puberulis supra adpresse adscendente albe pilosis, paniculis 3-11 cm longis 3-40 mm diametro terminalibus parte inclusis vel exsertis angustis et densis sed tarde ramulis divergentibus cum 60-92 spiculis, pedunculo 2-8 cm longo glabro, rhachidi ramis et pedicellis adscendente albe puberulis, pedicellis 1-3.5 mm longis adscendentibus, spiculis 1.3-2 mm longis 0.5 mm latis 0.4 mm crassis pallide viridibus lanceoloidis, gluma prima 1.3-2 mm longa paulum longiora in aspectu glabra sed proxima apicem midnervo minute scabre puberulo ovati-lanceolata valde 3-nervosa, gluma secunda 1.5 mm

longa lanceolata 5-nervosa, lemma sterili 1.3 mm longa elliptica acuta 5-nervosa, lemma fertili 1.2 mm longa elliptica cartilaginea alba involuta, palea 0.8 mm longa elliptica cartilaginea pallida, antheris 0.4 mm longis lineari-ellipsoideis subpurpureis.

Diagnosis of Holotype: Plant 23 cm tall, tufted, erect, short lived; roots fibrous; plant several branched from the base; culms 1-4-branched from the lower nodes; internodes 1-4 cm long, 0.4-0.5 mm in diameter, ascending white minute puberulous; nodes white pilose tufted; leaf sheaths 2-2.5 cm long, with many outstanding parallel glabrous nerves, but the concave intervals spreading white pilose; ligule a pilose ring, the hairs 0.8-1 mm long; basal blades 2-2.5 cm long, 1.5 mm wide; cauline blades 5-13 cm long, 2 mm wide, ligulate, acute, becoming involute and appearing 0.3 mm wide, pilose at base, below the veins prominent, glabrous, but the intervals ascending puberulous, above appressed ascending white pilose; panicles terminal, partly included or exerted, 3-11 cm long, 3-40 mm in diameter, narrow and compact, but tardily the branches spreading; peduncle 2-8 cm long, glabrous, bearing 60-92 spikelets; rhachis, branches, and pedicels ascending white puberulous; pedicels 1-3.5 mm long, ascending; spikelets 1.3-2 mm long, 0.5 mm wide, 0.4 mm thick, pale green, lanceoloid; first glume 1.3-2 mm long, slightly the largest, appearing glabrous, but near the apex the midrib minutely scabrous puberulous, ovate lanceolate, strongly 3-nerved; second glume 1.5 mm long, lanceolate, 5-nerved; sterile lemma 1.3 mm long, elliptic, acute, 5-nerved; fertile lemma 1.2 mm long, elliptic, cartilagineous, white, involute; palea 0.8 mm long, elliptic, cartilagineous, pale; anthers 0.4 mm long, linear ellipsoid, purplish.

Expanded Description: Plant 14-37 cm tall.

Holotypus: Hawaiian Islands, Kahoolawe Island, slope between Makaalae Pt. and Lua Kealialoalo, on n. w. side of island, Prosopis scrub, with Heteropogon contortus and Chloris virgatus, the dominant grasses between trees, fine red clay and weathered rocks, in full sun on bare ground, 500 ft elev., 4-21-1980, L. W. Cuddihy & W. P. Char 342 (BISH).

Specimens Examined: Hawaiian Islands, Kahoolawe Island, at type locality, Cuddihy & Char 343 (BISH); on transect C₅, from Smugglerr's Cove to beach 1 mile n. of Kealaikihiki Pt., with scattered Prosopis, Gossypium tomentosum, Merremia, Tragus, and Abutilon incanum, Nov. 26, 1978, W. Char & L. Yoshida 79.079 (BISH); $\frac{1}{2}$ mile n. e. of Kaukaikapapa Beach, with scattered Prosopis, 25 ft elev., 25 Nov. 1978, L. Stemmerman & P. K. Higashino 3,677B (BISH).

Molokai Island, Pohakumauliuli, 2/26/74,

N. Pekelo Jr. 31 (BISH); Kawela, along road to Puu Kolekole, open ground, 2,500 ft alt., 4-5-74, Pekelo 51 (BISH).

Discussion: The closest relative of the new species is P. Fauriei Hitchc., of Molokai, Oahu, and its offshore islets, a species with the rhachis and branches of the inflorescence pilosulous; outer glume ascending puberulous on the sides of the midrib near the apex; sheaths and back of blades appressed ascending puberulous between the ribs; blades below appressed ascending puberulous between the ribs; blades 1.3 mm wide; and the nodes puberulous like the culm. P. Cornae, of Kahoolawe Island, has the rhachis and branches of the inflorescence minutely ascending puberulous on the angles; outer glume ascending puberulous on the ridge of the midrib near the apex; sheaths spreading pilose; blades below sparsely pilose near the base, but subglabrous elsewhere; blades 1.5-2 mm wide; and the nodes pilose tufted.

The epithet is chosen to honor Carolyn Corn (1939-), born in Ancon, Canal Zone, educated at Oregon State University, B.S 1962; University of California, M.A. 1967; University of Hawaii, Ph.D, 1979; state botanist, Dept. of Land and Natural Resources, State of Hawaii, 1978-).

Panicum nubigenum Kunth, var. latius var. nov.

Diagnosis Holotypi: A specie differt in laminis 2.5-4 mm lats, spiculis 2.5-3.5 mm longis.

Diagnosis of Holotype: Differing from the species by having the blades 2.5-4 mm wide, and the spikelets 2.5-3.5 mm long.

Holotypus: Hawaiian Islands, Kahoolawe Island, on sea cliff of rocky coast west of Waikahalulu Bay, stony substrate with scattered Heteropogon, Chloris inflata, and low Prosopis, 100 ft elev., 4-21-1980, L. W. Cuddihy & W. P. Char 349 (BISH).

Specimens Examined: Hawaiian Islands, Kahoolawe Island, rocky coast west of Waikahalulu Bay, two low patches, stony ground, with Sida fallax, Atriplex semibaccata, and low Prosopis, 150 ft elev., 4-21-1980, Cuddihy & Char 344 (BISH); ditto 345 (BISH); sea cliff, s. w. of Lae Paki, rocky red clay substrate, with low Prosopis scrub, Atriplex, Chenopodium, etc., 25 ft elev., 4-22-1980, Cuddihy & Char 375 (BISH).

P. nubigenum, var. nubigenum which is more common on the island has the blades 1-2 mm wide and involute; and the spikelets (1.5-) 1.7-2 (-2.5) mm long. It occurs on several of the Hawaiian Islands, and on Kahoolawe it springs up commonly, after a good rain.

Also from Kahoolawe, there is the collection, L. Stemmerman & P. K. Higashino 3,677A (BISH), from

near the coast, 1.5 miles n. e. of Kaukaukapapa Beach, 25 ft elev., 25 Nov. 1978, which has the spikelets 3-3.5 mm long, but the blades 1.5 mm wide. Hence it is intermediate between the new variety and the species.

The new epithet is the Latin adjective *latior*, *latius*, broader, and it is chosen with reference to the broader blades of the new variety.

Legend

Fig. 1. *Panicum Cornae* St. John, from holotype.

a, habit X 1; b, sheath, culm, node, X 10; c, inflorescence, X 4; d, spikelet, X 15; e, first glume, X 15; f, second glume, X 15; g, sterile lemma, X 15; h, fertile lemma, X 15.

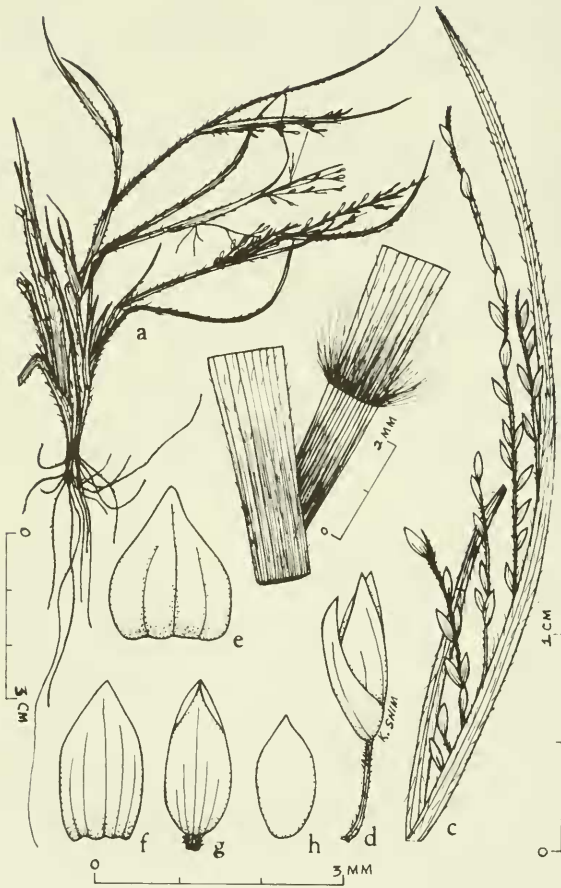


Fig. 1